



Evaluation of physical activity and energy expenditure among patients in Gestational Diabetes Mellitus (GDM)

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Introduction

Gestational diabetes mellitus (GDM) is associated with a wide range of short- and long-term implications for both the mother and her baby. With an increasing prevalence of GDM worldwide, there is an urgent need to assess strategies for GDM prevention (1,2). The healthy life style is crucial for patients in Gestational Diabetes Mellitus, including the adequate physical activity (PA) (3). The aim of the study was to estimate PA in the group of patients in GDM.

Materials and Methods

We evaluated the PA of 20 women in GDM per 7 days using 3-axis accelerometer measuring skin temperature, galvanic skin response, heat flux from the body and movement. These data were processed automatically to calculate total energy expenditure and metabolic PA.

Results

Table 1 presents information about group of the patients. Table 2 shows results from 3-axis accelerometer measurement. The mean measurement time in studied patients was 142:49 [hours:minutes], mean daily lying duration 9:09 [hours:minutes], mean daily sleep duration 7:29 [hours:minutes]. The PA duration was very low, especially at the higher levels. The dominated level of PA was sedentary (0-3 metabolic equivalents;

Table 1. Information about group of patient (n=20)

	Mean	SD
Age (years)	31	±3
Body weight (kg)	71,5	±15,4
Height (cm)	163,9	±5,4
Weeks of delivery (weeks)	30	±2
Duration of view (hours: minutes)	142:49	±9:35

Results

1 MET = equivalent to 3.5 ml/kg/min of oxygen uptake) – daily mean 21:44 [hours: minutes], daily moderate PA (3-6 METs) took only 1:27, mean time of vigorous PA (6-9 METs, like running, jogging) was 2 minutes at the time of registration and only in 10 patients. Daily Total Energy Expenditure (TEE) per person was 2238 kcal and Daily Active Energy Expenditure (AEE) per patient was 366 kcal.

Table 2. 3-axis accelerometer measurement results (n=20)

	Mean	SD
Daily lying duration (hours:minutes)	9:09	±1:16
Daily sleep duration (hours:minutes)	7:29	±1:07
Time of sedentary PA (0-3 METs) per day (hours:minutes)	21:44	±
Time of moderate PA (3-6 METs) per day (hours:minutes)	1:27	±0:47
Time of vigorous PA (6-9 METs) per 7 days (hours:minutes)	0:02	±0:03
Time of very vigorous PA (>9 METs) per 7 days (hours:minutes)	not detected	-
Daily Total Energy Expenditure (kcal)	2238,22	± 346,35
Daily Active Energy Expenditure (kcal)	366,87	± 167,98
Daily Average METs (METs)	1,36	±0,19
Number of steps per day	6651	±1773
Daily sleep efficiency (%)	81,7	±4,7

Conclusions

The adequate physical activity and active energy expenditure in the studied group of the patients in GDM was low. There is the challenge for the medical staff to motivate these patient to increase PA and AEE as the one of the most important factor to treat GDM.

References

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